

Abstract

The present invention relates to the field of oil product hydrogenation, and relates to a grading system and an application of a hydrogenation catalyst and a grading method of the hydrogenation catalyst. The system comprises M hydrogenation catalysts sequentially filled in a material flow direction, wherein M is an integer greater than 2; an R value of an Nth hydrogenation catalyst is not less than an R value of an (N-1)th hydrogenation catalyst, and the R value of at least one Nth hydrogenation catalyst is greater than the R value of the (N-1)th hydrogenation catalyst, wherein N is an integer greater than 2 and not greater than M; the R value is a ratio of molar content of the VIII group metal element in the hydrogenation catalyst characterized by an X-ray photoelectron spectrum to weight content of the VIII group metal element in terms of oxides in the hydrogenation catalyst characterized by an X-ray fluorescence spectrum. According to the grading system of the hydrogenation catalyst provided in the present invention, the hydrogenation catalysts having different surface nickel atom concentrations are used for grading, thereby facilitating improving the overall denitrification effect of the device, and improving the hydrogenation saturation performance of a catalyst system.